

Claims:

- 5 1. An expansion card, which card (CP) is arranged to be fitted in an expansion card connection of an electronic device, such as a data processor, and which comprises a frame part (16—20), **characterized** in that the card (CP) is provided with an antenna structure (1—10) which is formed as a rod-like structure comprising a first end (S1) with an antenna part (1) for receiving and transmitting signals, and a second end (S2) placed movably inside said frame part (16—20), wherein said
- 10 antenna structure (1—10) is arranged to be movable for inserting the antenna structure (1—10) in said card (CP) and for extending the first end (S1) outside said card (CP).
- 15 2. The expansion card according to claim 1, **characterized** in that it is a card-like wireless communication device (CP), wherein said frame part (16—20) is provided with means (14, 15, 17) for processing signals, and that the second end (S2) of said antenna structure (1—10) is provided with connecting means (4) for transferring signals between
- 20 said antenna structure (1—10) and said means (14, 15, 17) for processing signals.
- 25 3. The expansion card according to claim 1 or 2, **characterized** in that it is formed at least partly as a card (CP) complying with a standard, such as the PCMCIA standard, being preferably 85.6 mm long, preferably 54 mm wide and preferably not more than 3.3 mm, 5.0 mm or 10.5 mm thick.
- 30 4. The expansion card according to ^{claim 1} any of the claims 1 to 3, whose frame part (16—20) comprises connector means (20) for connecting said card (CP) electrically to said expansion card connection, **characterized** in that the antenna structure (1—10) is arranged to be pushed out at the opposite end of said card (CP) with respect to said connector means (20).
- 35 5. The expansion card according to ^{claim} any of the claims 1 to 4, **characterized** in that said antenna structure (1—10) is arranged to be pushed out by a spring means (11) fitted inside said card (CP).

A

claim 1

6. The expansion card according to ~~any of the claims 1 to 5~~, **characterized** in that said antenna structure (1—10) is arranged to be locked, by first inserting and then releasing, to its first position (A1), in which said antenna structure (1—10) is, preferably entirely, inside said card (CP), and that said antenna structure (1—10) is arranged to move from the first position (A1) to its second position (A2) by first pushing said antenna structure (1—10) more inwards and then releasing, wherein in the second position (A2) said antenna structure (1—10) extends, preferably as far as possible, outside said card (CP).

10
Sch 20

7. The expansion card according to claim 6, **characterized** in that said antenna structure (1—10) is arranged to be locked in its position by means of locking means (5, 10, 12, 13) fitted in connection with the second end (S2), which locking means (5, 10, 12, 13) comprise a position lever (5, 10) arranged to be deflected to the side direction and to return and arranged in a functional connection with designed lever guides (12, 13), which lever guides (12, 13) are arranged upon inserting said antenna structure (1—10) to deflect said position lever (5, 10) to a position which prevents the pushing out of said antenna structure (1—10), and are arranged upon pushing said antenna structure (1—10) further inwards to allow the return of said position lever (5, 10) to a position which allows the pushing out of said antenna structure (1—10).

8. The expansion card according to claim 7, **characterized** in that said lever guides (12, 13) comprise at least a first, preferably triangular part (12) which comprises side surfaces arranged to be followed by a pin (10b) fitted in said position lever (5, 10) and behind which said pin (10b) is arranged to be set when deflected, and preferably also a second part (13) which is arranged to keep said pin (10b), which has passed the first part (12), deflected and to guide it behind the first part (12) for locking.

A *Sch 38*

9. The expansion card according to claim 7 ~~or 8~~, **characterized** in that said position lever (10) is arranged at the second end of said antenna structure (1—10), and that said lever guides (12, 13) are fitted in a fixed manner inside said frame part (16—20).

00631501.080300

10. A method in the manufacture of an expansion card, which card (CP) is arranged to be fitted in the expansion card connection of an electronic device, such as a data processors, and which comprises a frame part (16—20), **characterized** in that the card (CP) is provided with an antenna structure (1—10) which is formed as a rod-like structure comprising a first end (S1) provided with an antenna part (1) for receiving and transmitting signals, and a second end (S2) placed movably inside said frame part (16—20), wherein said antenna structure (1—10) is arranged to be movable for inserting the antenna structure (1—10) in said card (CP) and for extending the first end (S1) outside said card (CP).

11. An antenna structure which is arranged to be fitted in a wireless communication device (CP), such as a mobile phone and an expansion card, which comprises a frame part (16—20) provided with means (14, 15, 17) for processing signals, **characterized** in that said antenna structure (1—10) is formed as a rod-like structure comprising a first end (S1) provided with an antenna part (1) for receiving and transmitting signals, and a second end (S2) which is to be placed movably inside said frame part (16—20) and which is provided with connecting means (4) for transferring signals between said antenna structure (1—10) and said means (14, 15, 17), wherein said antenna structure (1—10) is arranged to be movable for inserting the antenna structure (1—10) in said wireless communication device (CP) and extending the first end (S1) outside said wireless communication device (CP).

12. The antenna structure according to claim 11, **characterized** in that it is arranged to be pushed out by a spring means (11) fitted inside said frame part (16—20).

13. The antenna structure according to claim 11 ~~or 12~~, **characterized** in that it is arranged to be locked in its position with locking means (5, 10, 12, 13) fitted in connection with the second end (S2), which locking means (5, 10, 12, 13) comprise a position lever (5, 10) arranged to be deflected to the side direction and to return and arranged in a functional connection with designed lever guides (12, 13), which lever guides (12, 13) are arranged upon inserting said antenna structure (1—10) to deflect said position lever (5, 10) to a position which prevents the

00631501-080300

A

pushing out of said antenna structure (1—10), and are arranged upon pushing said antenna structure (1—10) further inwards to allow the return of said position lever (5, 10) to a position which allows the pushing out of said antenna structure (1—10).

14. The antenna structure according to claim 13, **characterized** in that said position lever (10) is arranged at the second end (S2) of said antenna structure (1—10) and that said lever guides (12, 13) are arranged in a stationary manner inside said frame part (16—20).

15. An arrangement for a wireless communication device (CP), such as a mobile phone or an expansion card, for setting and guiding an antenna structure (1—10) in different positions (A1, A2), **characterized** in that

— said antenna structure (1—10) comprises a first end (S1) which is provided with an antenna part (1) for receiving and transmitting signals, and a second end (S2) to be fitted movably inside said wireless communication device (CP),

— the arrangement comprises a spring means (11) to be fitted inside said wireless communication device (CP), for pushing out said antenna structure (1—10),

— the arrangement comprises locking means (5, 10, 12, 13) for setting said antenna structure (1—10) in its first position (A1), which locking means (5, 10, 12, 13) comprise a position lever (5, 10) arranged to be deflected to the side direction and to return and arranged in a functional connection with designed lever guides (12, 13), which lever guides (12, 13) are arranged upon inserting said antenna structure (1—10) to deflect said position lever (5, 10) to a position which prevents the pushing out of said antenna structure (1—10), and are arranged upon pushing said antenna structure (1—10) further inwards to allow the return of said position lever (5, 10) to a position which allows the pushing out of said antenna structure (1—10) to its second position (A2), and

09531501.080300

— the first position (A1) is arranged for bringing the antenna part (1) to the inside of or closer to said wireless communication device (CP) and the second position (A2) is arranged for bringing the antenna part (1) out of or farther from said wireless communication device (CP).

16. The arrangement according to claim 15, **characterized** in that said position lever (10) is fitted at the second end (S2) of said antenna structure (1—10) and that said lever guides (12, 13) are integrated in said wireless communication device (CP).

1007
C+

09631501.080300